

Title: Optimal iterated moment bounds for nonuniformly hyperbolic maps

Abstract: Moment bounds for Birkhoff sums $\sum_{i=0}^{n-1} v \circ T^i$ and iterated sums $\sum_{0 \leq i < j < n} v \circ T^i \circ w \circ T^j$ arise when proving deterministic homogenisation (convergence of a fast-slow system to a stochastic differential equation). In this talk we will present a new result which gives optimal iterated moment bounds when T is a slowly mixing nonuniformly hyperbolic map. We will also discuss a generalisation of decay of correlations called the Functional Correlation Bound, which is the key tool in our proofs.